

AS Level Biology A
H020/02 Depth in biology

Question Set 8

1. (a) A patient was admitted to a hospital ward suffering from a heart rhythm abnormality.

Fig. 1.1(a) shows an ECG trace of the patient upon arrival at the hospital.

Fig. 1.1(b) shows an ECG trace of the patient when their heart rhythm had settled down to that of a normally functioning heart.

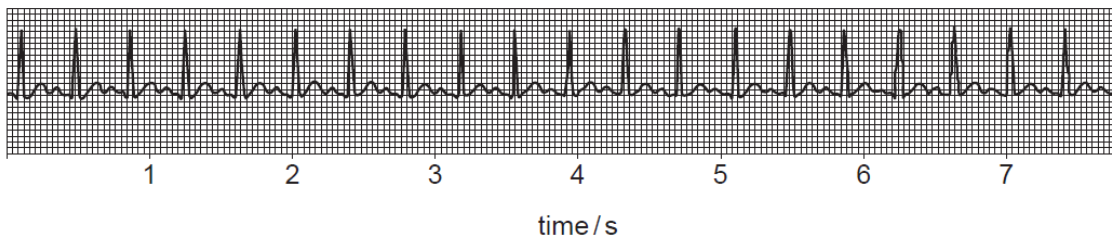


Fig. 1.1 (a)

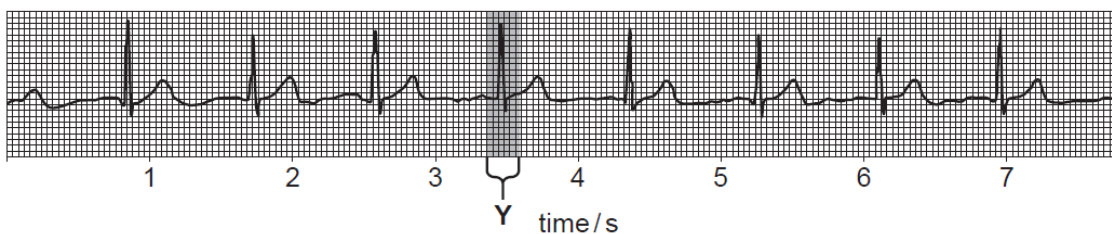


Fig. 1.1 (b)

(i) Using the traces shown in Fig. 1.1, name the heart rhythm abnormality that the patient is suffering from. [1]

(ii) The equation for working out cardiac output is:

$$\text{cardiac output} = \text{stroke volume} \times \text{heart rate}$$

Stroke volume is the volume of blood pumped per heart beat.

The stroke volume of the patient is 80 cm^3 .

Calculate the cardiac output of the patient using **Fig. 1.1(b)**.
Give your answer in standard form.

Answer Units [3]

(iii) Explain how the heart is controlling the electrical activity at **Y** on Fig. 1.1(b).

[2]

- (b) Fig. 1.2, **on the insert**, shows photographs of sheep's hearts that were considered for use in a school dissection.

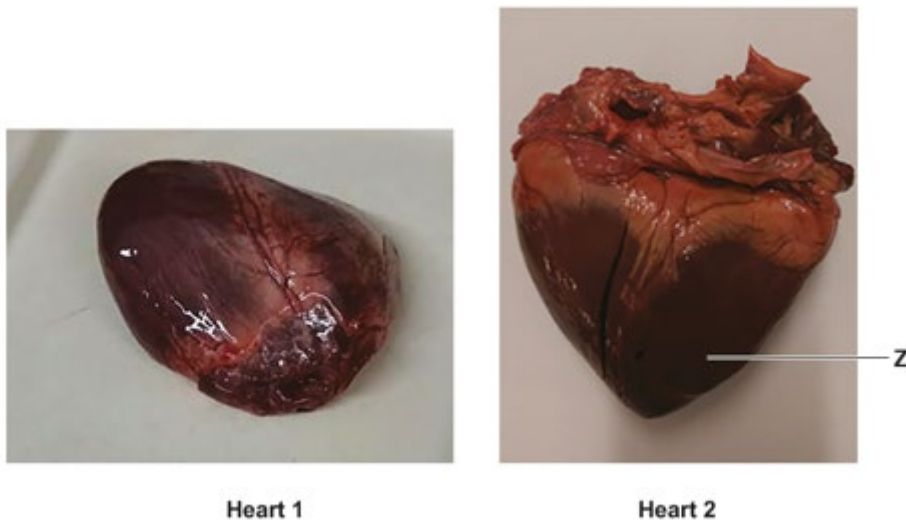


Fig. 1.2

- (i) Looking at the two hearts in Fig. 1.2, a student decided that **Heart 2** was a better choice for the dissection because it had more structures present.

What evidence from the two hearts in Fig. 1.2 supports the student's decision?

[1]

- (ii) Name the structure labelled **Z** on Fig. 1.2.

[1]

(c)* Fig. 1.3 shows the heart at different stages of the cardiac cycle.

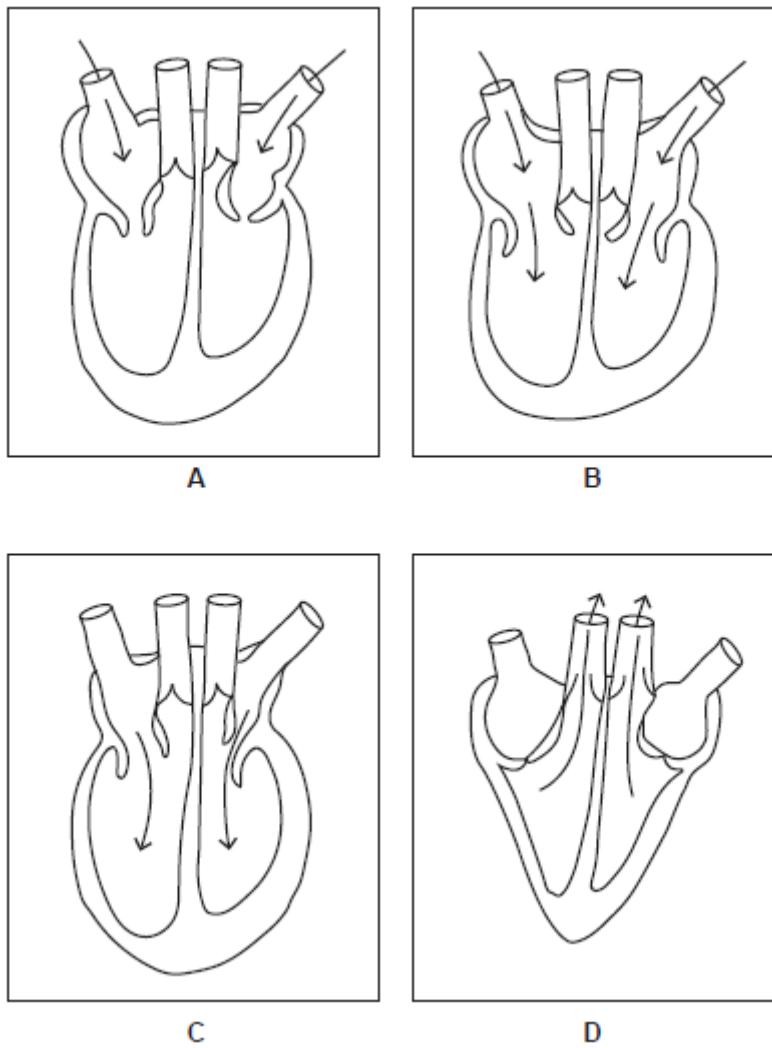


Fig. 1.3

Box A shows atrial diastole. Blood is entering the atria, which are relaxed.

Outline the remaining stages of the cardiac cycle, with reference to boxes B, C and D in Fig. 1.3.

[6]

Total Marks for Question Set 8: 14

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